This unknown force does not operate an infinite distance, but is limited to an area the radius of which is about three miles.

In conclusion, then, the author finds nothing in the phenomena exhibited by bees or ants to prove the existence of any psychical quality. They learn nothing, but act mechanically in whatever they do, their complicated reflexes being set off by simple physiological stimuli.

CASWELL GRAVE.

Studies on Hair. — In the last number of the *Jenaische Zeitschrift* (vol. xxxi, p. 605) Dr. Fritz Römer continues his studies on the integument of mammals in an article dealing with the arrangement of the hair on the African rodent *Thryonomys swinderianus*. In an embryo of this species, about sixteen centimeters long, the head, trunk, extremities, and base of the tail seemed covered with rows of small scales. On closer inspection this appearance was found to be due not to scales, but to the arrangement of the hair. The hairs were placed in short, slightly curved rows, each row containing three, five, eight or twelve hairs. While in any row the middle hairs were longer than the lateral ones, no single, large, central hair could be distinguished, as de Meijere has found in the hair groups of so many mammals. Römer explains the rows of hairs in Thryonomys by assuming that they were originally developed on an ancestral form covered with scales, the rows of hairs alternating with the scales, and the scales afterwards disappearing. Since the publication of de Meijere's paper on the hairs of mammals this theory has been gaining ground. Beside these regularly arranged hairs the embryo examined by Römer showed many small, irregularly scattered hair germs which, upon further examination, were shown to give rise to the fine hairs of the thick winter fur, the summer fur consisting almost entirely of the regularly arranged hairs. The summer fur, then, presumably represents a hair arrangement phylogenetically older than the winter fur.

G. H. P.

The Eyes of Amphioxus. — The organs of vision in Amphioxus have been made the subject of careful study by Dr. R. Hesse.[1] They consist of very simple direction eyes, lying close to the central canal of the spinal cord. They occur from the third muscle segment very nearly to the tail. The eyes are not uniformly distributed along the cord, but are arranged in segmental groups, the groups corresponding to the muscle segments and, consequently, alternating on the two

[1] *Tübinger Zoologische Arbeiten*, Bd. ii, No. 9, 1898.